

GROSJEAN et al  
Appl. No. 10/579,227  
February 19, 2008

### **REMARKS/ARGUMENTS**

Reconsideration of this application is requested. Claims 1-11 are in the case.

#### **I. THE 35 U.S.C. §112, SECOND PARAGRAPH, REJECTION**

Claims 4, 5 and 11 stand rejected as allegedly indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, the Action notes that the unit of Pent test value is missing after the number "150" in claim 4 and, in claim 5, the term polydispersity index is not defined. Claim 11 stands rejected as in "use" format. The rejection is respectfully traversed.

The units of the Pent test are hours (see Table 1 at page 8 of the present application). This has been added after "150" in claim 4.

Polydispersity in claim 5 refers to  $M_z/M_n$ . This is clear from the originally filed specification at page 3, line 25.

With regard to claim 11, this claim has been reworded as a process claim. No new matter is entered.

Withdrawal of the formal rejection is now believed to be in order. Such action is respectfully requested.

#### **II. THE PRIOR ART REJECTIONS**

Claims 1-11 stand rejected under 35 U.S.C. 103(a) as allegedly unpatentable over Bergmeister et al. (US 6,174,981) (Bergmeister). Claims 1-11 are rejected under 35 U.S.C. 103(a) as allegedly unpatentable over McDaniel et al. (US 6,525,148) (McDaniel). The obviousness rejections are respectfully traversed.

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In response to the obviousness rejections, and without conceding to any merit in those rejections, claim 1 has been amended to recite "a  $\mu_0/\mu_2$  ratio of 13 to 20". Basis for this amendment appears in the application as originally filed in the paragraph bridging pages 2 and 3. No new matter is entered.

In both of the cited patents, the disclosed compositions are made using a chromium/alkylboron catalyst system, and both have very high Mw/Mn values (see Table 1 of Bergmeister and Table IV of McDaniel). From this, the compositions would be expected to exhibit very similar rheology. Rheology data is presented in Bergmeister, where in the penultimate column of Table 1 the ratio  $\eta_{0.1}/\eta_{100}$  is given. The values of  $\eta_{0.1}/\eta_{100}$  shown are high; i.e., they are all above 30. It is preferred (see claim 9) that the values of  $\eta_{0.1}/\eta_{100}$  are higher than 50.

According to the Cox-Merz law, the  $\mu_0/\mu_2$  ratio defined in the present application can be considered to be equivalent to an  $\eta_{0.1}/\eta_{100}$  ratio. In other words, claim 1 requires an  $\eta_{0.1}/\eta_{100}$  ratio of 13-20. The relationship between  $\eta_{0.1}/\eta_{100}$  and  $\mu_0/\mu_2$  is well-known to persons of ordinary skill in the art. Thus, an  $\eta_{0.1}/\eta_{100}$  ratio of less than 20 is equivalent to an  $\mu_0/\mu_2$  ratio of significantly less than 30.

Based on the  $\mu_0/\mu_2$  ratio as now defined in amended claim 1 and the  $\eta_{0.1}/\eta_{100}$  ratio disclosed in Table 1 of Bergmeister, it is clear that neither of the cited documents discloses or suggests the invention as now claimed.

In addition, the present invention is particularly concerned with the rheology of the polymers, in order to prevent wall sag (see the discussion at page 1 of the application). Thus, the  $\mu_0/\mu_2$  ratio is particularly important for the invention. Neither of the two cited patents is concerned with this problem. McDaniel is mainly concerned

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with improving the stress crack resistance of a pipe, which is a very different problem. Bergmeister is concerned with improving the speed of the extrusion process which again a different problem. Moreover, Bergmeister prefers an  $\eta_{0.1}/\eta_{100}$  ratio higher than 50, which leads directly away from the present invention.

In light of the above, it is clear that the cited art does not give rise to a *prima facie* case of obviousness. Neither Bergmeister nor McDaniel addresses the problem solved by the present invention, and neither patent suggests the solution. As a result, a person of ordinary skill would not have been motivated to arrive at the present invention based on the cited art. Withdrawal of the obviousness rejections is accordingly respectfully requested.

Favorable action is awaited.

Respectfully submitted,

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